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NATIONAL SIGN SYSTEM STUDY

National Park Service
1987

"Let us not revolutionize the National Park Service sign system, but rather 'evolutionize' it to a higher standard and quality."

William Penn Mott
Director, National Park Service
January 1987

SUMMARY

PURPOSE

William Penn Mott, the director of the National Park Service, has recently expressed concern about the quality, design, placement, and proliferation of signs in the national parks. Signs form the centerpiece of public relations and information for communicating with visitors, and they often create the visitor's first impression of a park. Signs should provide information for a coherent, reassuring, quality experience.

The purpose of this study is to analyze the existing NPS sign system and to recommend ways in which improvements can be achieved. The study is generally concerned with signs that are visible from the road (including entrance, traffic directional, and park informational signs). Standard regulatory, warning, interpretive, and trails signs are not considered in this study. In the future, all types of park signs should become part of a comprehensive integrated sign system.

RECOMMENDATIONS

After identifying, assembling, and analyzing the data that was collected and the changes that were suggested concerning NPS signs, the study team recommends a series of changes to improve the current sign system. The establishment of a centralized sign team--the major change recommended herein--would be the most efficient and cost-effective solution to the major problems within the current system. This idea is reinforced by recommendations for such a centralized team by organizations that already have them. Highlights of the study team's recommendations include the following:

- Give signs a higher priority in funding. Recognize that effective and unobtrusive signs and their messages are vital to the visitor experience and that the job of establishing/creating park signs is a full-time task that should be done by qualified personnel.

- Establish an office of full-time employees--a centralized sign team--who would develop detailed guidelines and assist parks and regions in preparing sign plans as well as expediting design, procurement, and periodic park sign evaluations throughout the system.

- Revise the current NPS "Sign System Specifications" manual for use by the sign team, incorporating the various technical guidelines that currently exist into one manual.

- Develop and publish a product-oriented, illustrated, nontechnical sign handbook, which could be created by the sign team or a professional consultant, to show the parks, regions, and cooperating agencies and communities examples of the various types of signs

available, appropriate and inappropriate signs, effective and ineffective placement, hardware, costs, and ordering procedures.

- Custom-design park entrance signs, and other signs when appropriate, to move away from institutionalized-looking signs.

- Establish functional, simple sign plans and inventories for each park.

- Conduct various research efforts to aid in the improvement of the NPS sign system.

- Develop training videos for field employees to enhance sensitivity to good sign design and familiarity with procurement and installation procedures.

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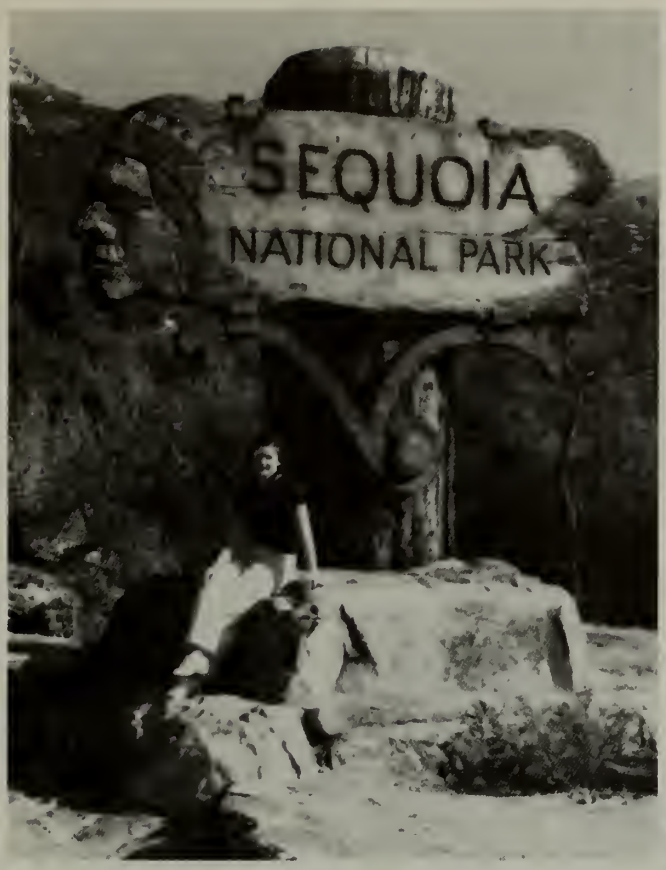
EVOLUTION OF THE NPS SIGN SYSTEM AND GUIDELINES

Since 1917, profound changes in the public's expectations, increased use of private automobiles, and diverse artistic styles have influenced the way the National Park Service (NPS) has designed, fabricated, and placed signs. Three distinct historic period styles contributed to what we see today as the NPS sign system--the rustic style, the "Mission 66" style, and the highway safety style.

The rustic style signs of the 1920s, 1930s, and 1940s were usually designed and constructed without guidelines. These signs were often produced by local craftsmen who used indigenous materials and believed that a sign should impart information and express in style and material the unique character of an individual park. These signs varied widely in visual quality and materials, and no attempt was made to link the parks together under one NPS image. This period reached its greatest achievements during the CCC and WPA days and set a unique and impressive standard still beloved by visitors and NPS staff--a standard that is almost impossible to achieve under today's policies. An outstanding example of this type of signing, which continues to be used as an integrated park sign system, is found at Bandelier National Monument (see page 14).

RUSTIC STYLE

Carved wood
Use of ornamental base
Local natural materials
Use of local craftsmen
Reflects unique character of park


SEQUOIA
NATIONAL PARK

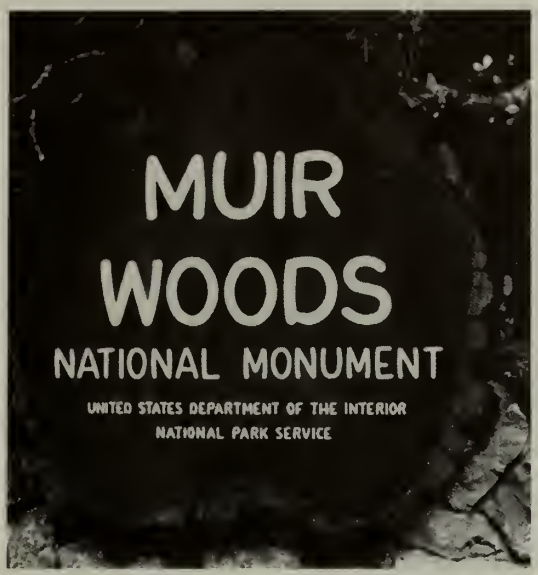
J. L. Hubbell
Trading Post

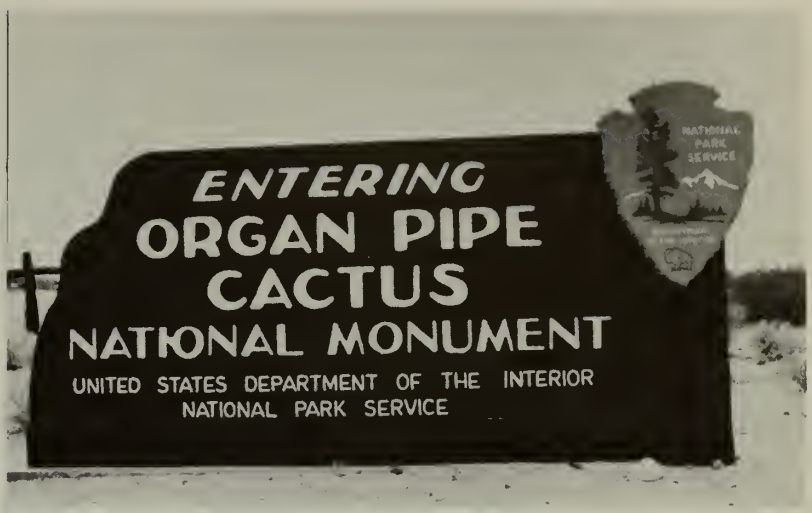
PARK

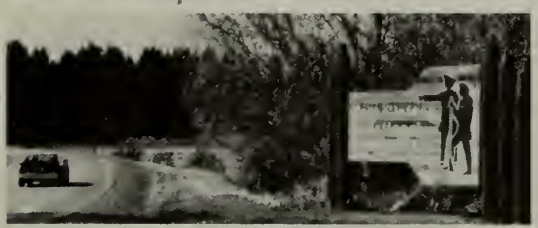
The Mission 66 era, in the 1950s and 1960s, was characterized by a larger park system, more visitation, expanded interpretive programs, and stricter design guidelines. Recreation areas were developed, and visitor centers, other facilities, and roads were constructed in the face of these demands. This wave of construction also included the need for more traffic control and informational signs. In response, a handbook on signs and interpretive waysides was issued. These guidelines allowed wide latitutde for creative design, lettering styles, and materials. In the 1960 edition, NPS Director Conrad Wirth stated, "We are striving for clarity of public direction and interpretation by means of attractive and effective signs and wayside exhibits."

MISSION 66 STYLE

Attempt to reflect park themes
Use of geometric shapes
Use of arrowhead logo
Accent on natural materials







TUMACACORI
NATIONAL MONUMENT

ENTERING
BIG BEND
NATIONAL PARK

ENTERING

In 1966, the National Highway Safety Act (PL 89-564) established standards for federal roads used by the public. Within national park system units, ever greater numbers of vehicles, an increased sensitivity to safety factors, and greater possibilities for tort claims led to more complex informational needs and more and more signs. The Park Service had, over the years, developed signs that were aesthetically satisfactory, but they were often too small, not easily read from moving vehicles (especially at night), and not in compliance with federal highway safety standards. At the same time safety evaluations conducted by the National Safety Council recommended that the Park Service comply with the standards contained in the Manual on Uniform Traffic Control Devices (MUTCD). The Park Service adopted the MUTCD as its standard for all NPS roads. NPS-specific guidelines, standards, and specifications were issued in 1972 in the NPS "Sign System Specifications" (NPS-SSS)--legally a supplement to the MUTCD. These signs reflected a general trend throughout America for standardization and created, for the first time, a nationwide NPS image.

The NPS-SSS attempts to establish safety standards while allowing for signs that are unique to the Park Service. The NPS-SSS is admired for its uniformity, technical innovations, and completeness; however, it has been criticized as poorly organized and often likely to create industrial-looking signs that are inappropriate to park environments.

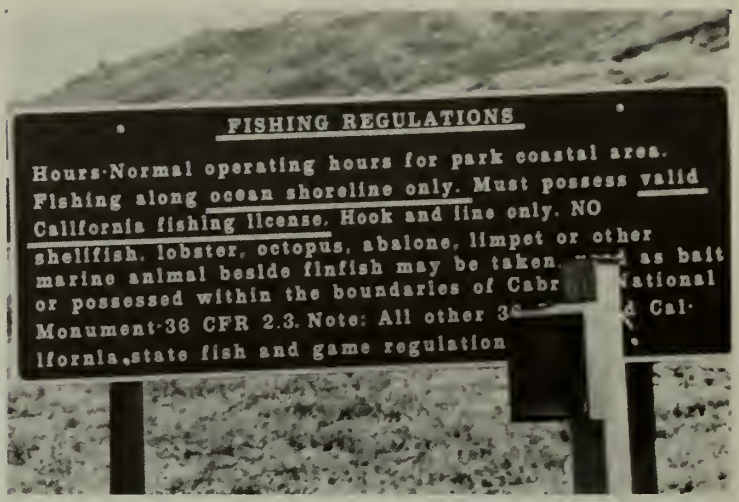
Obtaining quality signs for parks has always been a great concern. In conformance to the MUTCD, Modified Clarendon lettering was chosen by the Park Service to establish a unique standard identity for all its park units. This lettering was then tested to ensure appropriate readability and visual quality. However, signs with this unique lettering were difficult to obtain. The Federal Prison Industries (UNICOR) agreed in the early 1970s to fabricate all NPS signs, with the condition that it become the mandatory procurement source for NPS signs and materials. Clearance from UNICOR is required for all exceptions--excluding routed wood signs that are no longer made by UNICOR. In accord with this arrangement, the Park Service ordered the closure of all in-park sign shops in 1974 and agreed that all vehicular and pedestrian traffic control signs would be fabricated by and procured through UNICOR. Some standard traffic signs are also ordered using the General Services Administration (GSA) supply schedule.

In July 1985 the "NPS Traffic Control Sign System Guideline" (NPS-52) was issued. Among other things, this guideline outlines the purpose, roles, and responsibilities for the sign system and establishes modern traffic control engineering principles and uniform standards for the application of vehicular and pedestrian traffic control and signs.

Today, NPS signs continue to adhere to national highway safety standards while projecting the unique identity of the Park Service through the Clarendon lettering style.

HIGHWAY SAFETY ERA

Formulated standard design
Safety oriented
Minimal design variation


FISHING REGULATIONS
Hours-Normal operating hours for park coastal area.
Fishing along ocean shoreline only. Must possess valid
California fishing license. Hook and line only. NO
shellfish, lobster, octopus, abalone, limpet or other
marine animal beside finfish may be taken
or possessed within the boundaries of Cabr
Monument-36 CFR 2.3. Note: All other
lfornia state fish and game regulation

National Capital
Region HQ.
1100 Ohio Drive S.W.
U.S. Park Police

Amistad
Recreation Area
GOVERNORS
LANDING
United States Department of the Interior
National Park Service

Wildlife Area
NO: Trail bikes
Smoking on trail
Motorized vehicles
Pets
Fires
Guns

STUDY PROCESS AND APPROACH

This study followed four steps in assessing the NPS sign system:

- analysis of the NPS sign system, guidelines, and research
- analysis of other sign systems for comparison
- identification of problems associated with the NPS sign system and signs
- formulation of recommendations for improving NPS signs and the sign system

ANALYSIS OF THE NPS SIGN SYSTEM, GUIDELINES, AND RESEARCH

Telephone interviews with regional sign coordinators and selected park staff, including Washington D.C. (WASO), Denver Service Center (DSC), Harpers Ferry Center (HFC), region, and park personnel, were conducted using a set of predetermined questions. Responses were compiled and evaluated. (See appendix A for a summary of interview questions and responses.)

In addition, over 5,000 photographs of signs were solicited from throughout the Park Service. These were analyzed and categorized by type and historic period. Selected prints were displayed and proved invaluable in stimulating discussion during the study.

Operational documents, regulations, and policies were reviewed and evaluated. Many of these documents had played pivotal roles in the evolution of the NPS sign system--including the Highway Safety Act of 1966, various memorandums of agreement between the Park Service and the Federal Highway Administration or UNICOR, the MUTCD, the NPS-SSS, NPS-52, and various sign brochures.

In a 1984 study, Dr. John D. Peine (Chief Scientist, Upland Research Laboratory, Great Smoky Mountains National Park) discovered a great disparity between what a park manager believes the public needs to know to enjoy and respect the park resources and what the public wants to know. His study revealed that park managers' priorities focus on resource protection, health, and safety messages, yet visitors desire information on how to enjoy their trip in the limited time available to them. Humor in park messages, especially in cartoon form, had the highest recall.

In FY 1986, the National Park Service spent less than one-fifth of one percent of its annual operations budget (about $900,000) on park signs--installing some 20,000 signs nationwide at an average cost of $55 per sign. Total FY 1987 sign costs are not expected to exceed this figure.

ANALYSIS OF OTHER SIGN SYSTEMS

During the study, contact was also made with a variety of public and private groups responsible for sign systems and manufacture. These included state park agencies in California, Nevada, Oregon, Utah, Texas, Ohio, Pennsylvania, and New Hampshire; Fairfax County, Virginia; the U.S. Forest Service; the Tennessee Valley Authority; Parks Canada; and the Southwood Corporation. The highlights of these discussions are as follows:

Centralized ordering and production works best when special design problems are solved by professional staff (who usually were trained in landscape architecture).

Guidelines (a handbook or manual) for design, layout, production, and sign installation are desirable.

Routed wood signs are preferred by most of these organizations for their aesthetic appeal, although they feel metal ones last longer and can be cheaper to produce and maintain.

Signs with a brown background and yellow or white lettering have become the norm for public acceptance in parks.

The consensus of those interviewed was that entrance signs should be unique to each park's setting and that identification logos are desirable on entrance signs. Several organizations have found the state and federal prison systems' sign production to be cumbersome and slow, and they have sought other means of production. (Summaries of these contacts are in appendix A.)

IDENTIFICATION OF PROBLEMS AND RECOMMENDATIONS

From the contacts, interviews, and research, a comprehensive list of problems was compiled. These were divided into subject areas (management, planning and design, production and procurement, maintenance, and research) and prioritized. Many of those interviewed made helpful suggestions about improvements that could be made to the NPS sign system. The problems and suggestions were examined and consolidated into major subject areas corresponding to those categories already used to classify problems. These problems and recommendations are presented after the following examples of unaesthetic signs and aesthetic integrated park sign systems.

UNAESTHETIC SIGNS

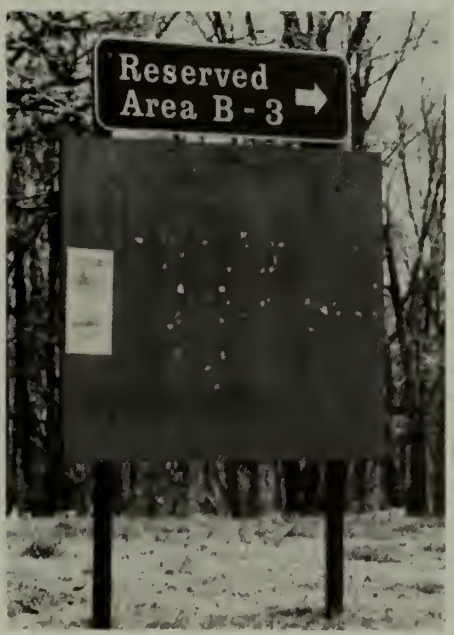
Lack of clarity and visual continuity
Mixing of sign styles
Too many messages per sign

WRONG WAY

Miwok Trail
Bobcat Trail 0.9 km
Rodeo Valley Trail 1.5
Wolf Ridge Trail 2.5
Chaparral Trail 2.5
Bobcat Trail 4.2
Tennessee Valley 6.0

LYNDON B. JOHNSON
NATIONAL
HISTORICAL PARK
VISITOR CENTER

Yosemite National Park
Campground Information
Yosemite Valley
Full
Crane Flat
Hodgdon
Space Available
Tuolumne
Space Available
Wawona
Full
Camp ONLY in Designated Campgrounds
Picnic Areas - Turnouts - Roadside Areas
Closed to Camping


Reserved
Area B-3

THURMONT VISTA 1.5
WOLF ROCK 2.5
CHIMNEY ROCK 2.9

AESTHETIC INTEGRATED PARK SIGN SYSTEMS

Bandelier

Grand Canyon

free canyon shuttle

PROBLEMS AND RECOMMENDATIONS

Problems within the NPS sign system today are numerous. To review them in a systematic way, they have been grouped under general headings and prioritized. Critical to improving the system is the recognition that there are problems; however, improvements can be made while capitalizing on the system's many strengths. The following recommendations interact to solve most of the identified problems while allowing flexibility for future changes in personnel, policy, and technology.

MANAGEMENT

Problem	Recommended Action
1. Signs are considered low priority, resulting in low motivation for long-term planning and design of quality signs.	Issue an NPS directive raising the priority of signs, emphasizing their importance and stressing quality design. Under this directive, establish an incentive awards program to recognize excellence in sign planning and design.
2. Funding for signs is low priority. Too often funds earmarked for signs are used for other purposes.	Establish a specific NPS sign account and monitor expenditures of such funds to see that monies are spent on signs. In addition to the resource management and interpretation programs, sign programs could receive a portion of entrance fee revenue.
3. Regional and park staff sign work is always assigned as collateral duty. As such, these NPS employees do not have sufficient time to devote to sign planning, design, procurement, tracking, and installation and often do not have the technical orientation or expertise that is required for this most important aspect of public relations and safety.	Create a full-time centralized sign team (CST), made up of qualified personnel from various relevant disciplines. This team would work closely with park and regional staff and be responsible for preparing sign plans, consulting with solicitors on legal issues, planning and designing standard signs, designing custom entrance signs, reducing the number of signs in a congested area, acting as a clearinghouse for procurement (perhaps with an "800" number for telephone orders and sign tracking), and conducting periodic park sign evaluations and inspections. Existing

		regional sign coordinators, if interested and knowledgeable, could become members of this team or members of an advisory board who would aid in the transition to the centralized sign team. The team would provide services to all the regions, much as DSC and HFC do now. (The HFC wayside exhibit team and the DSC graphics design group are appropriate models for how this team could function.) The team could be administered under DSC, HFC, or WASO. The CST would have access to video equipment and computers for design, simulation, inspection, and data storage functions.
4.	Training does not exist for sign design, procurement, installation, and maintenance. Often park managers, rangers, and maintenance staff do not fully understand the complexities and intent of the NPS sign system.	Establish a motivational and educational video program illustrating the purposes, materials, and functions of park signs and sign systems. This program could be a companion to the handbook (see item 5 below), showing examples of effective and ineffective signs and sign systems. Users would include park managers, park staff, regional staff, cooperating agencies, and communities.
5.	The NPS-SSS is complex, confusing, and cumbersome. It emphasizes technical matters rather than visual quality and design, does not encourage creativity, and was written for those with previous technical knowledge instead of for employees who are given sign work as a collateral duty.	Rewrite the NPS-SSS with the goal of simplifying and streamlining the manual while incorporating all guidelines and technical information relevant to the team. (The "Sign Plan Guidelines" and "Sign Information Guidelines" recently developed by the Pacific Northwest and Midwest regions may provide relevant material that can be included.) This manual would not generally be distributed to the parks or regions because of its highly technical nature. In addition, the CST would prepare a product-oriented, informational, nontechnical sign handbook showing what kinds of signs are

		available and which sign types (such as directional, traffic control, and regulatory) are appropriate and meet NPS needs while maintaining aesthetic quality. This handbook would show the appropriate colors and shapes for standard signs; types of signs that work successfully throughout the system; examples of effective and ineffective signs; available hardware; examples of creative solutions to problems of clutter, setback, and weathering; ordering procedures; a price and materials section; and any other information relevant to the park superintendent or staff to facilitate the choice of an appropriate sign when ordering. The handbook would clearly define sign types and standards and include a flowchart to graphically guide the user through the entire NPS sign cycle. The handbook would be distributed to the parks and regions and would emphasize aesthetic quality and encourage creativity.
6.	There is a lack of accountability for sign quality at all levels.	Establish accountability for sign quality by incorporating responsibilities in the performance standards of the regional directors, superintendents, facility managers, and CST members.
7.	Quality control and sign inspections are inconsistent.	Establish periodic evaluations in the field and make recommendations to parks for improvement. This task could be incorporated in the existing annual Operations Evaluation (OE) efforts if a member of the CST was included on the OE team.

PLANNING AND DESIGN

Problem	Recommended Action
1. An awareness of the importance of excellence in sign design and placement is missing throughout the Park Service.	Raise the priority of signs; issue a clear, informational, nontechnical sign handbook (discussed under item 5 of previous section), with information about appropriate design principles, materials, and prices; and reward excellence in park sign systems. All of these actions would help improve this awareness throughout the Park Service. The video program (discussed under item 4 of the previous section) would also help to emphasize and explain why signs are so important.
2. Entrance signs are too standardized and often do not reflect the unique quality of individual park units.	The CST (or possibly A/Es depending on workload) should design park entrance signs to reflect each site's unique qualities and to feature the park's unique logo, if available.
3. Other park signs that could be more creatively designed to fit into the park environment or that have site- or park-specific applications are often done with standardized "institutionalized-looking" signs for expediency and because of the unavailability of staff with the necessary design skills. The NPS-SSS is now used for all types of signs rather than as a supplement to the MUTCD for traffic signs only.	Other signs requiring custom design (underwater, Braille, historic signs, etc.) should be designed by the centralized team.
4. UNICOR signs create an "institutionalized" look, which is not the king of visitor experience sought by the Park Service. Routed wood signs are not the standard in the NPS-SSS, but they are preferred by NPS personnel and other park agencies because they do not detract as much from the natural environment as the UNICOR-made standardized signs.	The CST, in revising the manual and writing the handbook, will clarify the situations where standardized signs are required and where other types, including routed wood. Traffic control signs will continue to be made according to required safety and materials standards.)

5.	Proliferation and visual clutter of signs often occur because law enforcement and emergency needs often override consideration of visual quality. Clutter occurs easily in wide-open areas and in adjoining towns and cities where NPS signs are mixed with other signs.	Minimize the number of signs in congested areas by removing unnecessary signs. Create an awareness of this problem through policy directives, the central team handbook, videos, and careful inspections. Successful examples of consolidation and simplification would be shown in the handbook and video.
6.	Standard traffic signs are often too big. Design is dictated by speed limit considerations rather than good design principles.	Reduce and enforce speed limits. Reduce sign sizes (still within safety limits) by using a more flexible and modified range of lettering sizes. This would be accomplished by close cooperation of the parks and the CST. In some parks, lettering other than the bulky Modified Clarendon might be used.
7.	Sign plans are not being prepared or used. Guidelines are too complex and take too much time to be carried out in the parks. Few total sign systems for individual parks, comprising all necessary sign types, have been systematically designed and implemented.	Prepare sign plans, including a sign inventory form, for each park. This effort would be led by the CST, with park staff assistance. (The Pacific Northwest Region's "Sign Plan Guidelines" offers an excellent basis for such plans.) Where whole park plans are not feasible, plans for trouble spots would be encouraged. Plan, design, produce, and install a total sign system for a new park area or an area where a complete sign system redesign is needed. This should be a prototype system, using the recommendations outlined in this study. The new Great Basin National Park in Nevada and New River Gorge National River in West Virginia would be good candidates for such efforts, as would the Richmond National Battlefield Park in Virginia, which needs a redesign of its entire sign system.
8.	There is a lack of visual continuity among the various types of park signs.	Establish visual continuity for an entire park through the park's sign plan, accomplished by close

	cooperation of the sign team and the park staff.
9. Mountings for NPS-SSS specified signs are not often well designed.	Design hardware and mounting system to improve sign face appearance. Mountings should visually emphasize strength and support.
10. A conflict exists between policy and practice concerning the legitimacy of in-park sign shops.	Clarify the use of in-park sign shops based on item 3 under research recommendations.
11. The process of planning standard signs as outlined in NPS-SSS is time-consuming and complex.	Because this would be a responsibility of the CST, regional and park staff would no longer need to be concerned with laying out signs. If a current sign plan was not available, park staff would provide information and photographs of the sign's setting to the CST who would be familiar with sizes, lettering, and other requirements and could expedite the process of designing and ordering a sign. Interactive computer software for sizing and ordering would help all those involved in sign work.
12. Standard 10-84 order forms do not aid in visualizing the desired signs.	Revise future order forms to enhance visualization of the final sign product.
13. Overuse of negative regulatory signs ("no" messages) and other signs detract from a positive visitor experience.	Create positive messages where feasible. Use other communications media, such as brochures, radio, and bulletin boards, to convey regulations (as outlined in 36 CFR 1.7).
14. Concessioners' signs often do not conform to the NPS sign system.	Issue a policy that concessioners' signs be uniform with the park's sign system and approved by the CST.

15.	No comprehensive communications planning exists to integrate signs with other forms of park communications, such as radio, wayside exhibits, and printed materials.	Encourage parks to integrate all aspects of public relations and information (signs, brochures, logos, interpretive waysides, publications, radio channels, visitor contact, etc.). Special park themes should be emphasized. (See also item 4 under research recommendations.) NPS-2, the "NPS Planning Process," should be amended to include and describe such communications plans, with guidance on how to prepare them.
16.	No deviation from the standard white lettering on brown background is allowed in the NPS-SSS.	Revise the NPS-SSS to allow for the use of different colors for special conditions such as fog zones, deep shade, sensitive historic areas, or custom-designed signs.

PRODUCTION AND PROCUREMENT

Problem	Recommended Action
1. The existing sign procurement system is complicated, complex, and inefficient. There are complaints about "too much paperwork."	Simplify the sign procurement system. The CST would be responsible for procurement. Orders could be made by phone to an "800" number like those used by private mail-order companies. Photographs of the area where the sign would be installed could be sent to expedite the CST's planning and design process. Orderers should receive a confirmation receipt accompanied by a drawing or possibly a computer simulation of the proposed sign to verify the correct sign and setting.
2. There is a lack of information in the field about state-of-the-art special materials now available for signs.	Based on the research in item 2 under research, provide a price and materials supplement to the handbook, as necessary, to update pertinent information. This supplement would feature standard and custom products and services available from UNICOR and others, describing the most current materials that might be applicable to the NPS sign system needs. In the parks, limitations on the use of these innovative products must be included. Special materials that could be made available on supply contracts similar to the HFC wayside exhibit base supply contract would be included. (See item 2 under research recommendations.) The CST would be responsible for keeping the information up-to-date.
3. Minimum opportunity exists for participation by organizations other than UNICOR in sign production.	Create increased opportunity for private sector involvement in sign production. UNICOR should compete and should not be the sole source for standardized sign production.

4.	There is inadequate tracking of the sign after shipment from the manufacturer (usually UNICOR) to the park.	Establish a tracking system within the CST that would confirm UNICOR (and other) orders and indicate target delivery dates. Shippers would send copies of the bill of lading to the park and the CST. Parks should also send a copy of the receiving report to the CST. As needed, the team would then inspect delivery orders and guide installation.
5.	Under federal acquisition regulations, permission to use local artisans and craftspeople for sign production is difficult to obtain.	Encourage the CST to also use local talent for custom-designed and crafted signs that would reflect each park's unique characteristics. Local artisans are often quite sensitive to the unique characteristics of the park area and can often provide services economically.

MAINTENANCE

Problem	Recommended Action
1. Damaged, vandalized, and deteriorated signs detract from parks' visual quality and adversely affect the information and safety functions of the signs. Vandalism is most likely to occur in developed areas and when the sign has a negative message. Many signs are not easily repaired and cannot be patched, and others are difficult to replace.	Perform periodic inspections of park signs (using inventory sheets, photographs, or video) to identify problem areas. Ideally these should occur annually as part of the Operations Evaluation of each park. A member of the sign team should be present. When signs are ordered, duplicates may be ordered at the same time for signs that most frequently need replacing.
2. There is a lack of knowledge, information, and guidance about successful ways to repair and restore signs.	Publish a sign maintenance manual that would include state-of-the-art methods for sign repair and restoration. This manual would be updated every three to five years by the CST and would include all aspects of sign repair and restoration.
3. There is inadequate numbering, dating, and inventory of signs. Such information would be quite helpful for quick replacment or for predicting when a sign will probably need replacement or repair. Inventories are often performed by untrained staff.	Establish a systematic numbering, dating, and inventory system for all signs. Each park could have its own internally consistent system. Stamps, decals, or routed labels should be vandal-proof and include date of manufacture, number, age, manufacturer's name, condition, and type of sign. With this information, damaged or deteriorated signs could be quickly reordered and replaced through the CST. Computer software related to the maintenance management system would connect sign needs with the park's maintenance priorities. Or, if computers are not used, simplified inventory sheets for on-site record-keeping would be created by the CST and entered into the central team's computer after completion by the park.

RESEARCH

Problem	Recommended Action
1. Almost no scientific research has been conducted within the Park Service to determine if the sign system meets the needs of the visiting public and adequately aids in the protection of resources.	Initiate behavioral science and perceptual research studies to determine the most effective and important types of communication and the best ways to present it to enhance visitors' experiences. Conduct communications research to find out if, when, and how the National Park Service might wish to expand its use of international language signs or brochures in areas receiving large numbers of non-English-speaking visitors.
2. Information about state-of-the-art materials available for signs is lacking.	Initiate research projects to investigate newly developed materials and hardware that would enhance visibility, vandal resistance, and durability. Tests could be conducted in cooperation with other agencies, such as FHWA and the American Society for Testing Materials. The CST would be the recipient of this information and would disseminate it to the parks, with recommendations for appropriate use.
3. The policy regarding the use of, need for, and legitimacy of in-park sign shops is unclear.	Conduct a feasibility study to consider whether the Park Service should have any in-park sign shops, should have one or more centralized sign shops, or should rely on outside sources for all signs and sign repair. This is especially important with regard to routed wood signs.

4.	No comprehensive public relations/information plan exists to integrate and analyze the sign system with other communication efforts, such as radio, wayside exhibits, and printed materials.	Conduct research into the feasibility and efficacy of developing a comprehensive communications plan for each park that would include all aspects of public relations and related documents and media. A document with a common denominator for all forms of communication and how they function in relation to one another would be an asset to each park unit. For example a brochure might replace a group of signs and be more effective, or a radio channel might be even more effective. This kind of plan could also be an asset, especially in the larger parks, for allowing the "right hand to know what the left hand is doing."

CONCLUSION

In the short time allowed for this study, the team discovered a broad range of problems within the current sign system--some procedural, some design-related, and some having to do with lack of understanding and control. The recommendations attempt to capitalize on the existing system's strengths but improve them so that NPS signs can be a consistently outstanding, attractive part of the public's national park experience. If these recommendations are successful, visual quality will improve, clutter and proliferation will be reduced, procurement time will be shortened, and visitor confusion will diminish. In the long run, these adjustments--relating to a very small percentage of NPS expenditures--could have a far-reaching positive effect on visitors, staff, and the park resources. The resulting sign system, developed by a team of qualified professionals, could greatly enhance visitors' experiences of the park units.

APPENDIX A: SUMMARY OF INTERVIEW RESPONSES

NPS REGIONAL SIGN COORDINATORS

The following questions were addressed to all 10 of the regional sign coordinators in spring 1987. A summary of their responses follows each question.

1. What are your general feelings and concerns with the existing NPS sign system? Do you have problems with it? What are its merits and strengths?

Responses varied widely, although most coordinators said that signs are usually low priority both for funding and action. All felt that a certain degree of standardization is a strength of the current system. Changes in park personnel disrupt continuity, and the general absence of new or updated sign plans further fragments coordination. Small parks seldom have access to good design input, and many parks find it easier to substitute standard UNICOR signs for those that should be special and unique, especially entrance signs. There is no available training for sign planning, design, layout, ordering, installation, or maintenance. The regional coordinators need ways to regularly inspect the signs they are responsible for. The Modified Clarendon letter style is cumbersome and often results in signs that are too large. Superintendents generally ignore signs unless the public or park police complain--then they seek an immediate solution. UNICOR signs are reliable, but do not motivate development of any creativity.

2. How do you accomplish your sign program? What process do you use? Do the parks communicate with the region? Do the parks order and install signs without region's knowledge?

Sign coordinators are key players in the process. Most parks send in a preliminary request, and the regional sign coordinator does most of the layout and ordering paperwork. The coordinators handle all UNICOR-manufactured traffic signs. The routed wood and interpretive signs are usually made in or ordered by the parks themselves.

3. Are sign plans prepared by the park? Is a sign plan really necessary? Do you inspect signs in the park(s) on a regular basis? How often? If you find a problem, how is it corrected?

Sign plans are very important and can be useful, yet they are not being done or updated. Regular inspection, if it is being done at all, is being done by the park staff, not the regional coordinators; it is often haphazard at best. One regional coordinator has developed a "Guideline for Sign Plans" to supplement the NPS-SSS.

4. Is the current sign plan review process workable? Do you get any useful feedback from the parks?

The review process is feable to nonexistent. There is never time to adequately prepare and review a plan, so sign planning is often done haphazardly. The people in the process can easily influence what gets done. For example, a superintendent with strong feelings about or recent experience with signs can completely change a park's sign identity.

5. Do you get any feedback from park visitors about NPS signs--their quality, uniformity, and usefulness?

Almost no feedback is received except complaints from lost visitors. If a sign is well designed and placed, people do not notice anything special about it.

6. Do you have any specific concerns about the current sign design and implementation process? Are there problems with maintenance, safety, design, aesthetics, vandalism, location, liability, or proliferation?

Clutter and vandalism are problems throughout the system. Proliferation is a common problem at entrance stations and just outside parks where NPS signs are mixed with others. Superintendents should be encouraged to seek design help to solve sign emergencies--otherwise clutter can easily result.

The limited choice of letter sizes often causes oversized signs. NPS signs generally have an industrial look. Too many signs have "no" messages--in which case it is better to use radio, pamphlets, or bulletin boards. The ordering process is awkward, especailly because sign coordinators get no confirmation from UNICOR that signs have been shipped or from the park that they have been received. Most staff assigned to work on signs do not have training in the rudiments of layout, ordering, installation, or inspection.

7. Are you satisfied with the present methods of production, manufacture, and delivery by UNICOR?

Quality can be a problem, because UNICOR materials testing is minimal (peeling is a common wear problem). Delivery is often slow, but has improved in recent years. Prices seem to be equal to private-sector sources, although there is no current price catalog and accurate estimates are difficult.

8. Which categories of signs--regulatory, directional, informational, interpretive, etc.--give you the most problems? Why?

Directional and informational signs are problems because the NPS-SSS is not flexible, and sometimes the signs get too large when specifications are followed. Interpretive signs often create clutter because they are not usually well coordinated with other signs. Parks should develop the concept of a harmonious "family of signs."

9. How do budget, funding, and priority-setting affect your sign program?

Signs are usually low priority, so funding is a constant problem. In recent years the Federal Lands Highway Program (FLHP) funds specifically for signs have been a major funding source. (Parks do spend sign money on other tasks.) Signs should be a regular, recognized part of the NPS budget cycle.

10. Do you use the existing NPS-SSS?

Everyone who orders standard signs from UNICOR uses the NPS-SSS. It is important and is used for sizing, definitions, guidance, and understanding the ordering procedure. However, the inventory procedure is laborious, and the manual includes reference to now unavailable sign and post types. The importance of well-designed, unique, attractive entrance signs is not emphasized, but it should be. The manual should also include clearer definitions of sign types and better material specifications. Sign word and panel length can now be determined using computer software that was developed by the Pacific Northwest Region.

11. If you did not have the NPS guidelines, how would you plan and implement your sign program?

The system would not work well without guidelines. Tort claims would increase, quality would decrease, and visual confusion and chaos would probably result. The NPS-SSS is a very valuable tool and would leave a vacuum if abandoned. Getting permission for local craftspeople to make signs is difficult under federal acquisition regulations.

12. Of all the sign materials available today, which (if any) do you prefer? Do you have any favorite styles of sign design?

Routed and sandblast-carved wood signs are generally preferred for aesthetic reasons, and they are easier to repair than plywood or metal signs. In urban areas, signs are usually hit by cars or vandalized before they wear out.

13. What aids, products, or guidelines would be helpful and useful to you in implementing and improving the sign system?

- an idea sourcebook, featuring the design of entrance signs, showing effective and ineffective examples, and general design principles to inspire and inform park staffs and sign coordinators

- a concise, streamlined sign manual, with a simplified ordering system

- a slide or video show of effective and ineffective signs--emphasizing setting, layout, function, and repair--could use the existing USFS program

- usable, up-to-date sign plans

- computer software for sign sizing and ordering, with potential to connect into the new maintenance management system for inventory and replacement

- more design help from DSC and HFC

- more management support for sign quality

- WASO-sponsored sign coordinators' conference and training on a regular basis

- more time for regional and park sign coordinators to inspect signs, do inventories, and, most importantly, prepare sign plans

RESPONSES FROM OTHER NPS STAFF

The following comments were made by various NPS staff members in response to general questions about signs.

Superintendent
The sign committee is active and makes regular inspections of the park's signs. They do not order signs from UNICOR. The regional sign coordinator is very helpful.

Superintendent and Chief Ranger
The park has no use for the NPS-SSS, no sign committee, and no sign plan. Existing signs are replaced by UNICOR through the regional sign coordinator, other park sign shops, and standard GSA catalog signs. UNICOR delivery time is about seven months. There is no funding for signs. The new fee collection system stipulates that revenues go to interpretation and resource management, not maintenance.

Superintendent
A park sign team is active, with regular inventories and inspections and a draft sign plan. The UNICOR system takes too long; however, the regional coordinator is helpful in expediting things. Funding comes from cyclic maintenance and regional sign funds. The superintendent's suggestion was to let the parks take care of signs themselves.

Superintendent
The park has no sign plan or inventory and probably no copy of the current NPS-SSS manual. Periodic inspections do occur. Bear damage is the biggest problem. All signs are routed wood and are made in the park; the regional sign coordinator is not consulted. No complaints from visitors have been received, and there are no budget or funding problems. The two biggest signs are routed redwood at the entrances.

Management Assistant
The NPS-SSS is used by the park sign committee. The park makes all its own signs (from wood) except for road signs, which are made by UNICOR and seem to be of good quality--although the delivery time is long. Because this park unit has a sign shop that is used by all NPS units in this region, the shop is geared up to do anything. Visitors have neither praised nor complained about the signs. Priorities and funding are not problems, and vandalism is only minor--mostly souvenir-hunting concessions employees. FHWA demands for weight limit signs create visual conflict with the area's wilderness character.

Park Manager
This park uses the NPS-SSS and has a current sign plan, but there is no active sign committee. UNICOR is not used; the fiberglass signs are purchased on contract after having been designed by a noted sign designer. The regional sign coordinator is helpful, but not strong in graphics. Funds for the signs are donated, so no cyclic or FLHP monies are used.

Chief of Interpretation
This park uses the NPS-SSS, has a sign team, and performs periodic inventories. The major concern is the time lag in getting a sign in place. For example, if a safety problem is identified, it may take six to eight months to get a sign in place, and in the meantime visitor mishaps can easily result in unwarranted tort claims. The process seems to vary from region to region and park to park, but overall it seems slow. Signs are low priority in the park (compared, for example, to a leaky visitor center roof). UNICOR sign quality is satisfactory, but not the slow delivery time. There are no vandalism problems because it is a small park that is easy to police. This park is faced with the perennial questions of too many vs. too few signs and complex informational needs vs. desired aesthetic simplicity. The chief's suggestion was that the sign process should be decentralized.

Chief of Maintenance
The park has a sign team, with a sign plan and sign inventory in progress. They find the NPS-SSS cumbersome and the UNICOR delivery schedule slow, and they use UNICOR only for secondary signs. They have a good relationship with the regional sign coordinator. No specific park funds are set aside for signs.

Landscape Architect
There are too many signs, which create clutter, and the signs are too standardized and monotonous. The NPS system needs more individuality and flexibility. The ordering/delivery system is slow. Custom signs should be professionally designed and well coordinated. Scabbed-on and emergency signs almost always look bad. Unique logos for individual parks should be encouraged.

Interpreter
The NPS-SSS is used on occasion. The ordering process does require waiting, although it does not seem unduly lengthy. The regional office is

not involved in this park's signs. Some signs are wood and some are metal, and they follow standard NPS design. UNICOR-made signs seem of high quality. Vandalism, low priorities for signs, and lack of funds are not problems. Visitors do respond to signs and find them helpful.

Facility Manager

The NPS-SSS is useful only for layout. The major problem is lack of time. To circumvent the cumbersome process and shorten delivery time, the park maintenance staff does its own signs, with no help from the region. Most signs are routed redwood, etched aluminum, or plexiglass. (UNICOR work was of satisfactory quality, but slow.) The park is large enough to absorb the costs of signs, so funding is not a problem. Vandalism is not a problem to any great degree. Visitors have given no feedback about the signs. One specific problem was the sign for the new entrance fee station, which if made strictly according to the guidelines would have been 8 feet by 14 feet!

RESPONSE FROM UNICOR GRAPHICS OFFICE STAFF

These comments summarize a discussion between the study team and the Federal Prison Industries, Inc. (UNICOR) Sign Group staff in Washington, D.C.

UNICOR serves all federal agencies from four prison factories. In the past, the Park Service has accounted for as much as 40 percent of their work; now it is about five percent, or some $600,000 worth of signs a year. As FLHP funds decrease, so does the volume of NPS signs ordered. UNICOR does not make routed wood signs because wood production does not mix well with other types of signs being produced and is no longer economical. Many other federal agencies are curtailing the use of routed wood signs. UNICOR suggests that if the Park Service wants more wood signs, it might benefit by establishing its own routed wood shop.

UNICOR sees the NPS sign system as one of the best in the nation. The NPS-SSS is standardized and complete and leaves little room for error and is still state-of-the-art. However, UNICOR signs produced to meet the NPS-SSS specifications are expensive. Details in the NPS-SSS, such as vandal-resistant fastenings and Z-bar reinforcement, are recommended for use by many other agencies.

UNICOR problems with the Park Service are the same as with other agencies--if not less. The main problem is incomplete ordering information. Park orderers often cannot visualize what they want. The order forms are too restrictive and imply a fixed set of proportions, so the signs get too big and are rejected when delivered. When sign work is collateral duty, signs are often delayed and staff time is inadequate for proper planning, design, and ordering. The mediocre results are often highly visible.

UNICOR feels there is good communication with NPS staff, especially the regional coordinators whom they call to resolve ambiguities. They would welcome clearer drawings and sketches, with photos showing the sign's installation setting or other signs it should emulate. Clear drawings with dimensions are important to ensure quality production. They enjoy and are fully equipped for custom work. For custom requests they are willing to do full-size or scale shop drawings at the quote stage.

As for improving quality, delivery time, and accuracy, a number of points were discussed. New machines guarantee uniformity and higher quality. Layouts can now be mechanically squeezed to fit tight spacing requirements and even proportionally reduced to 60 percent. UNICOR has lessened turnaround time to an average of 30 to 40 days, and most delays actually occur in the NPS purchase order system. In emergencies, signs can be delivered within three weeks. All signs have a seven-year guarantee. The Pacific Northwest Region's sign-sizing software is helpful and should be distributed to all sign orderers. Signs can be date-stamped and numbered when ordered (like that of the USFS) if NPS orders include this instruction. NPS order forms should also have a space indicating if the regional office wants a copy of the shipping order to confirm shipping dates--UNICOR would be happy to send these if requested. UNICOR also expressed interest in distributing a new price catalog (or pricing software) and helping produce and print a periodic NPS sign system supply catalog.

For the future, UNICOR sees its competitive position in the sign industry as strong. NPS dissatisfaction may arise from its own standards being high and therefore expensive; if the Park Service revises its own standards, quality and price must be carefully balanced. UNICOR endorses increased NPS training and suggested the USFS video as a model for showing the full procedure of planning, designing, laying out, ordering, fabricating, shipping, and installation.

Materials are getting better as the sign industry gets more competitive. New materials that are not in the NPS-SSS could be helpful--such as clear coatings to protect against sand scour and porcupine-resistant glues. Innovative materials and production techniques are available, and the Park Service should be aware of these new materials and techniques. UNICOR has a planner-architect who could help the Park Service with design problems and solutions if requested.

In conclusion a number of ideas and suggestions were given, including,

- having UNICOR help write and review the NPS-SSS revision
- emphasizing the importance of customer comment cards that come with sign shipments
- using UNICOR's customer relations department if there are complaints or orders need to be expedited

- making signs higher priority because of liability and safety issues and, of course, aesthetics

- having an annual sign coordinators' meeting, perhaps at a federal prison shop or at a commercial sign factory (such as Ojo Caliente, New Mexico, where the Park Service now procures most of its wood signs) to see firsthand how signs are made

- starting an order-tracking system so that replacement signs can be ordered instantly rather than redesigned (like a prescription refill system)

- informing the parks that newly delivered boxes of signs should be stored vertically and protected so they are not damaged before installation

SUMMARY OF RESPONSES FROM GROUPS OUTSIDE THE NPS

These comments were gleaned from office and telephone interviews with agencies and firms facing sign challenges similar to those facing the National Park Service.

U.S. Forest Service

The USFS no longer procures signs from UNICOR. They exercised a termination clause from their letter of understanding with UNICOR because of low quality, delayed deliveries, high cost, and the fact that UNICOR does not make routed wood signs, which is mostly what USFS uses. Their sign manual is being revised; however, no major revisions are planned. Standardization is emphasized, even in the design of entrance signs. The only areas of latitude are additional colors in recreation areas and nonuniform interpretive signs. The manual has deleted a lot of detail and stresses positive messages (minimizing "no" messages). The USFS does not consider its manual to be standard enough because it can be widely interpreted. As with many agencies, the USFS manual has been motivated by an "engineering mentality," stressing function and safety and not aesthetic (graphic and image) factors. The USFS sign procedure starts with the forest supervisor who orders signs (usually there is no on-site sign committee). Regional sign coordinators review the order and pass it on to contractors who actually lay out and manufacture the signs.

Other than road signs, signs are not a high budget priority and are generally funded out of maintenance budgets. Vandalism of the routed wood signs is high. Most tort claims involve traffic problems. Alternatives to signs include visitor maps and travel maps. Their system is becoming more standardized and includes an effective temporary sign system that uses decals for times for operation and recreational symbols. They also encourage use of the National Travel Management System, which was developed by the USFS, is marketed by Carsonite, and is available to

all federal and state land management agencies. The signs and decals provide concise information in a positive tone, explaining permitted activities and any restrictions. The modular signs include interchangeable parts and are easily customized.

Tennessee Valley Authority

The TVA uses only metal signs (routed wood does not hold up well enough in their experience), with white lettering on a brown background. All signs are designed and fabricated in a centralized sign shop, based on a standardized system in the TVA Sign Manual. The TVA has never used UNICOR. Their lawyers provide guidance for wording to avoid tort claims.

Fairfax County Park Authority (Virginia)

Each park designs and installs its own signs; there is no standardized system. Only routed wood is used, with yellow letters against a brown background. They prefer the uniqueness and individuality of such sign design, although special logos for each site are not used.

Texas Parks and Wildlife

These parks have a standardized system illustrated in a statewide manual. Signs are fabricated in a central sign shop. So far, only routed wood signs have been used, although the staff is seriously considering silk-screened letters on plywood, to be produced by the State Department of Corrections. Entrance signs have more individuality and are contracted out. No special logos are used.

Nevada, Utah, and California State Parks Systems

Nevada and Utah have adopted the California state parks' system Sign Handbook. The California manual was developed in 1973 (during Mr. Mott's directorship) and outlines a set of uniform standards and procedures. Design and function closely follow state park agency departmental policies. A sign inventory and location plan are a required part of the procedure. All lettering is Helvetica medium.

Southwood Corporation

The Southwood Corporation, a major sign designer, specializes in wood signs that have a clean, crisp, sophisticated design look and yet fit into the environment. They use sandblasting and standard routing techniques.

Currently Southwood is an active consultant with the Corps of Engineers, the Forest Service, and the Fish and Wildlife Service. The Army Corps of Engineers is concerned with image. Currently each division has a different manual and individual identity. Southwood is formulating a sign program that will eliminate regional identity and establish a national standard. The procurement process will also be standardized. The corps wants plans "on the shelf" to solve every condition that arises.

For sign programs, Southwood suggests creating a "proper attitude" in developing sign criteria. Signs should be high priority and be seen as integral to the park experience, well integrated with all street furniture. Private companies should be allowed more opportunity to make NPS signs. The restrictions of the UNICOR procurement system show in the finished sign installations.

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